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ABSTRACT

Forty low-achieving seventh and eighth grade students were involved in a study to ascertain whether intelligence, underachievement, or the difference between aural and sight vocabularies could predict relative learning rate with respect to reading achievement gains. For purposes of the study, "relative learning rate" was defined as the ratio of the learning rate during remediation to the learning rate prior to remediation. The subjects, more than 70% of whom were nonwhite and 50% of whom were economically disadvantaged, were administered standardized intelligence and reading achievement measures and an experimental differential vocabulary test in late 1977, and a reading achievement posttest in May 1978. Analysis of the test data showed that the three predictor variables were not effective in forecasting remedial reading success; moreover, there was a trend for subjects with low predictive characteristics to gain more than subjects with high predictive characteristics. The findings suggest that the use of intelligence scores and underachievement measures based on intelligence and prior reading achievement are unreliable for economically disadvantaged, minority low-achievers. (FL)

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THE VALIDITY OF IQ, UNDERACHIEVEMENT, AND DIFFERENTIAL VOCABULARY AS PREDICTORS OF REMEDIAL READING SUCCESS OF SEVENTH AND EIGHTH GRADE LOW ACHIEVERS

AN ABSTRACT OF A THESIS
SUBMITTED TO THE FACULTY
OF THE GRADUATE SCHOOL OF EDUCATION
OF
RUTGERS
THE STATE UNIVERSITY OF NEW JERSEY
BY

MICHAEL BUCHMAN

IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE
OF
MASTER OF EDUCATION

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ABSTRACT

This study sought to investigate the predictive validity of IQ, underachievement, and differential vocabulary--the difference between a subject's aural and sight vocabularies, as predictors of success in intensive reading training among low achieving seventh and eighth graders. The population for this study consisted of 40 subjects in compensatory reading classes in a central New Jersey intermediate school (grades seven and eight). Subjects were assigned to these classes on the basis of their poor performances on reading tests given to all seventh or eighth graders in this school. A full 70% of the test population was non-White, and over half the population was economically disadvantaged.

To investigate the predictive validity of the three variables in question, the researcher administered the following tests: Science Research Associates Tests of General Abilities (TOGA), as a measure of IQ; The Gates-MacGinitie Reading Tests (levels C and D), as a measure of reading achievement; The Differential Vocabulary Test--a test devised by Edward B. Fry, now in the tryout stage of development, as a measure of the gap between a subject's aural and sight vocabularies. Subjects took all three tests in late 1977 and took the reading achievement posttest in May of 1978.

Data were analyzed by grouping subjects' scores into high and low groups for each predictor variable. Mean gain scores were compared for each predictor variable by use of a *t* test. In addition, subjects' relative learning rates were compared to gain insight into the relative improvement in learning rate achieved during intensive reading instruction. This measure, proposed by the researcher, is the quotient of previous learning rate divided into learning rate during remediation.

This analysis showed no significant differences between the mean gain scores or the mean relative learning rates of subjects of greater or lesser predictive characteristics. There was, in fact, a trend for subjects with low predictive characteristics to gain more than subjects of high predictive characteristics.

It was concluded that the use of intelligence scores, and measures of underachievement based on intelligence and prior reading achievement were highly suspect for populations similar to the test population--that is, for economically disadvantaged, minority low achievers. It was suggested that differential vocabulary be investigated further as a possible predictor among a more normal population.

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P.S. Hi Mom. Hi Dad.

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CHAPTER I

INTRODUCTION

Many remedial reading programs select students for instruction on the basis of the discrepancy between their reading potentials and achievements. Recently, this selection process has come into question. The validity of reading expectancy formulas as predictors of reading achievement has been thrown into doubt by Bragg (1971) and Goodman (1973). Further, in the State of New Jersey, compensatory education policies require some special treatment for low achievers regardless of measured potential. The validity of underachievement as a tool of selection among low achievers for remedial reading instruction has become critical.

If students are to be selected from low achieving populations, then an effective and simple predictor of remedial reading success is desirable. One such predictor may be IQ, despite recent research to the contrary. Both Bragg and Goodman correlated reading predictions based on IQ with reading achievement. Goodman's statistical analysis led her to conclude that standard expectancy formulas could not predict remedial reading gains. Bragg could not account for the large

variance between reading predictions and achievements. But neither researcher measured gain scores directly, nor did they examine achievement of higher IQ versus achievement of lower IQ groups. This study will investigate these questions directly.

Another possible predictor of remedial reading success is the discrepancy between aural and reading vocabularies. Word knowledge is a component of many IQ measures, and directly related to reading ability. Furthermore, listening comprehension has been used to predict reading capacity. This link between auracy and literacy has also been documented by Sticht (1974) in Auding and Reading in which he supports the hypothesis that aural comprehension will predict reading comprehension after decoding skills have been mastered. This study will examine the predictive validity of an aural/reading word knowledge screening instrument.

How success is measured may also affect the validity of predictors. Goodman suggests previous achievement as a standard by which to predict remedial reading gains. Others may wish to measure success on an absolute scale. This study will examine the predictive validity for success measured on both relative and absolute scales.

Statement of the Problem

The problem is to ascertain whether intelligence, underachievement, or the difference between sight reading and aural vocabularies can predict relative learning rate or achievement gains in remedial reading among a population of low achieving seventh and eighth graders (identified by CTBS or EAP, see Chapter III).

Information will be sought to confirm or deny the following hypotheses.

Hypothesis I

There will be no significant difference in mean relative learning rate or mean reading gains during remediation between subjects of higher or lower IQ for this population.

Hypothesis II

There will be no significant difference in mean relative learning rate or mean reading gains during remediation between subjects of greater or lesser underachievement for this population.

Hypothesis III

There will be no significant difference in mean relative learning rate or mean reading gain during remediation between subjects of above or below mean vocabulary differential for this population.

Definition of Terms

For the purposes of this study:

IQ will be scores on SRA's Tests of General Abilities (hereafter, TOGA IQ, or IQ).

Underachievement will be the difference between mental age grade placement (MA -5.2) and reading achievement at the beginning of the study.

Differential vocabulary will be scores on the Fry Differential Vocabulary Test, intermediate level (hereafter D.V.).

Reading achievement will be scores on the Gates-MacGinitie Reading Tests (test levels chosen varied with individual needs)--hereafter R.A.

Reading gains will be posttest minus pretest R.A. scores.

Relative learning rate will be the ratio of (a) the learning rate during remediation, to (b) the learning rate prior to remediation (both measured in gain scores per year).

Compensatory reading will be instruction and practice in reading skills administered to groups of 9-13 students for 43 minutes daily each school day for 100 school days.

Above or below average refers to averages for the study population and not for the general population unless otherwise stated.

Importance and Limitations of the Study

It is hoped that this study will help clarify the nature of measures of IQ, underachievement, and aural/reading vocabulary differentials as predictors of reading success among previously low achieving seventh and eighth graders, and may aid in future research on this topic.

The population observed in this study is composed of low achievers as identified by the New Jersey State Educational Assessment Profile (EAP) or the Comprehensive Test of Basic Skills (CTBS). All students were reading more than two years below grade placement initially. Generalizations will be limited to populations of similar achievement and grade placement.

Overview of the Study

Chapter II will survey the literature for previous studies of IQ, underachievement, and the difference between listening and reading vocabularies as predictors of gains in remedial reading.

Chapter III will outline the design of the study and discuss the treatment of the data. Testing instruments employed will also be reviewed.

Chapter IV will contain a discussion of the findings, and the study will be summarized and conclusions will be drawn in Chapter V.

CHAPTER II

SURVEY OF THE LITERATURE

The interest in predictors of reading success has sustained much research because of the value such predictors would have for allocating resources and planning instructional programs. Unfortunately, no single predictor has arisen that totally satisfies this need.

Intelligence tests, although partially successful predictors, are criticized both for their weaknesses in predicting for students scoring out of the "normal range" and for their claims to measure general abilities for all populations. The validity of expectancy formulas and measures of underachievement are, of course, dependent on the validity of intelligence as a predictor.

"Listening capacity," "oral comprehension," or "auding" have also been investigated as predictors of reading success.

This chapter will outline the ideas and data favoring and opposing the use of intelligence and auding as predictors of reading success in order to place this study in perspective.

Intelligence and Reading Achievement

If a variable is to be used as a predictor of behavior, it is desirable that some logical connection exist between that predictor and behavior. Since reading is an intellectual task, there is an obvious connection between intelligence and reading. However, intelligence as an explanatory construct has been questioned. In reexamining the idea of intelligence, Liverant (1960) concludes that

> the term intelligence carries with it essentially untestable and empirically unjustifiable connotations which preclude coherent and systematic organization of the awesome variety of activities ascribed to its domain. (p. 110)

Citing evidence from factor analytic studies, Liverant concludes that "a single dimension is not capable of subsuming the great varieties of behaviors now assumed to be related to intelligence" (p. 110). Because of the work of Sarason and his co-workers, Liverant suggests that the persistence of a "general factor" based on low positive correlations between tested behaviors and IQ scores could be partially accounted for by competitiveness and anxiety in test situations.

Some evidence exists to support this view. Calhoun (1958) states:

> the correlation coefficients between mental age and reading have variously been reported as between .30 and .60; this suggests that only a fraction of the variance is accounted for by a common factor. (p. 25)

If correlations are so variable and low, it is possible intelligence tests measure factors that are coincidental to some determinants of reading achievement.

Further, the stability of measures of intelligence is imperfect. Adams and Torgerson (1956) reported that measured IQ may vary between 5 and 20 points or more. Moreover, the contents of the tests are more readily known by students of higher socioeconomic background. Therefore, the reliability of whatever is being measured by an IQ test is uncertain.

The use of intelligence scores to determine reading expectancy or to select students for remedial help is obviously in question. Spache (1976) rejects this use of IQ for the reasons cited above and others. He points out that people develop unevenly and that different reading skills may improve at different times. Also, the ability to read well is dependent on good teaching, and to assume equal opportunity would be unfounded.

Despite these weaknesses, Spache (1962) reports that the use of IQ widely persists: "All of the fifty clinics reporting . . . employ intelligence tests in diagnosis of reading problems" (p. 305). More recently, Fry (1972) indicates that "many districts admit only children with IQ's of 90 or above into reading programs" (p. 261).

Indeed, many authorities in the field suggest the use of IQ to determine reading capacity.

Adams and Torgerson (1956) state "a student's mental age is probably the best single basis for estimating the educational level at which he should be able to achieve" (p. 73). Fry and Dechant also endorse the use of MA in their texts.

The reason for this division among authorities may be that, although intelligence is limited in its predictive abilities, it is easily used; and evidence shows it may be the best predictor available.

Harootunian (1959a) found that for the prediction of reading achievement, IQ was better than a composite of learning and reasoning tests. Harootunian (1959b) also found that learning and reasoning test composites correlate well with IQ, indicating that IQ may predict ability to learn in general.

Breen (1965) in a longitudinal study of 332 elementary students found that "general learning ability at primary or elementary levels represents a general or global trait or characteristic." He also reported that academic aptitude had stabilized sufficiently by second grade to predict latter achievement with confidence. Although Breen found that primary reading level was a better predictor of intermediate academic success than IQ, he concluded that learning ability

and reading ability are almost the same.

In addition, studies have found intelligence a valid predictor across racial and socioeconomic boundaries. McCullough (1969) found intelligence a significant correlate of reading at the .001 level for both black and white populations. Curry (1960) reported that

> it can be concluded that in the majority of instances intellectual ability is a factor which is responsible for greater achievement regardless of the socio-economic status group to which the subject belongs.

Mental health may also contribute to reading disability; but Krippner (1964) found that when mental health was equalized, the only significant correlate to reading that remained was WISC performance IQ.

Measures of intelligence are far from perfect, but still they may have their use. Bruininks and Lucker (1970) found that although IQ was not a good predictor at early primary levels, it improved in predictive ability in intermediate grades.

Moreover, if a measure of intelligence that does not involve reading is chosen, the tester can be more reasonably assured of predictive success. Brendemuehl (1967) found that "reading ability does not seem to affect the validity of group non-verbal intelligence tests which are relatively free of reading material."

The relationship between reading and intelligence is one which is open to interpretation. On the one hand, the uncertainty of the construct and the imperfection of the tools of its measurement argue against the use of intelligence. However, much evidence supports its validity, if only in part, and with limited interpretation.

The idea of expectancy is directly related to the embattled idea of intelligence, and again the field is in disagreement.

Expectancy or Reading Capacity

The use of expectancy formulas to determine reading capacity is often met with skepticism and trepidation. Simmons and Shapiro (1968) caution that "any method of determining reading expectancy from standardized test scores leans heavily on the validity of test scores used" (p. 626).

The concept of expectancy itself is also challenged. Thorndike (1963) wonders why "it has been assumed that achievement somehow ought to correspond exactly to the level of performance on the aptitude test" (p. 3). Because of errors of measurement, Thorndike shows that "we could still expect to get a spread of discrepancy scores represented by a standard deviation of half a grade-unit" between predictor and

criterion measures. Thorndike says that since "the reliability of the measure of 'underachievement' is .51, this discrepancy score is a distressingly unstable measure" (p. 9).

Thorndike (1963) makes another objection to the concept of expectancy based on IQ. There is a bias built into this construct which tends to show high IQ students as "underachievers," and low IQ students as "overachievers." Spache (1958) follows this tack and argues against individual diagnosis based on IQ. Further, Spache interprets Bond and Tinker's data to show that their formula's predictions and observed achievement only "reasonably agree for children with IQ's of 90-110" (p. 17). The bias that Thorndike addressed was confirmed by Spache's interpretation.

Examining the predictive validity of expectancy formulas, Bragg (1971) and Goodman (1973) also reported that these formulas are inaccurate for remedial and average populations. Unfortunately, neither measured gain scores directly. Instead, these studies showed that expectancy formulas did not predict achievement before or after reading training. This is hardly surprising for students who were chosen <u>because</u> they achieved below their potentials. Still, Bragg and Goodman cast doubt on the effectiveness of reading capacity formulas.

Despite these objections to predicting individual success from IQ, the expectancy formula may still stand as a useful tool in predicting group gains. However, because of these objections and the desire for some measure of expectancy, searches for other predictors have been made. One area that may offer some hope is auding.

Auding and Reading

Sticht (1974) uses "auding" to mean the equivalent of "reading" in the auditory dimension. He and his associates reviewed the literature and found support for several hypotheses, each linking listening to reading. Sticht (1974) shows that until decoding skills have been mastered, auding surpasses reading ability. Sticht presents the porportions of studies at different grade levels in which auding surpasses, equals, and lags behind reading performance.

> All of the comparisons [between auding and reading] for the first three grades show A > R [auding > reading]. This proportion drops as a negative function of grade level. As grade level increases, the proportion of comparisons in which A = R grows, and becomes equal to the proportion of comparisons showing A > R at around the eighth grade level. Reading excels only at the college and adult levels, where close to half of the comparisons show A < R. (p. 82)

As students progress through school and learn more decoding skills, then, the proportion of studies showing reading achievement to equal and surpass auding

achievement increases.

Further, Sticht finds evidence that auding comprehension predicts reading comprehension after decoding skills have been mastered. From the studies available, Sticht finds "a strong relationship between oral language ability in kindergarten, and subsequent reading ability" (p. 85) when comparing students of extremely high and low kindergarten auding achievement. These predictive studies all used auding comprehension and reading comprehension measures. Nonetheless, these summaries of studies on auding suggest that listening vocabulary tests may predict reading achievement.

Also, Sticht suggests that the data offer a "method for defining what is meant by the elusive term 'mature' reading--'mature' reading is the level at which reading competency equals auding competency" (p. 83). Perhaps students whose reading achievement lags farthest behind their auding achievement would be the most suitable candidates for intensive reading instruction: these students may be those with the most room for growth.

The strength of the relationship between auding and reading is recognized by others in the field as indication of auding's usefulness in determining expectancy. Simpson (1958) suggests that to determine

expectancy one should involve listening tests as well as other judgments. Spache (1962) also indicates that "several studies show moderate correlations between listening and reading" (p. 182).

In her study of reading capacity, however, Bragg (1971) found that listening tests correlated with reading little better than .50. Furthermore, long individual listening tests are difficult to use with large populations. One reason that listening might not correlate perfectly with reading is that listening is a trainable skill (Spache, 1962). Students' trainings in these skills may be unequal.

Auding has also been found to correlate well to intelligence. Plessas (1963) reported scores of eighth graders on the California Auding Test correlated with the California Test of Mental Maturity (total) with an r = .75. Moe (1957), studying primary subjects, found not only that auding and reading correlated well (.8 and above) but that when analyzed together, auding and intelligence were better predictors of reading than either measure alone.

A test of auding that does not rely too heavily on complex listening skills and is easily administered may be a welcomed addition to the field of predictors of reading success. The Fry Differential Vocabulary Test, being piloted in this study, may be such an

instrument.

Other Predictors

Several other predictors of reading success have been suggested. Many of them cannot be used for policy decisions, however. Socioeconomic status could hardly be used to exclude a student from remedial help. Nor could sex or race. Goodman (1973), however, proposes previous learning as a predictor of success. She reports a correlation of .92 between predictions made using previous achievement and achievement measured after remediation.

This finding implies that in studying prediction of reading gains, it would be wise to look at both absolute gains and gains relative to previous learning.

Summary and Conclusion

The literature indicates conflicted opinions regarding the use of intelligence and "underachievement" to predict reading success. Although much evidence suggests that there is some relationship between general intelligence measured on a nonreading IQ test and the reading achievement of low achievers in remediation, the construct of intelligence as well as the accuracy of its measurement are seriously questioned.

There are indications that auding ability may offer some additional predictive efficiency to our efforts, as may consideration of previous learning rates.

This study has been designed to investigate these indications and includes the use of a nonreading IQ test, a test of auding vocabulary, and consideration of previous learning rate through the use of 'relative learning rate' to measure remedial reading success.

Chapter III, which follows, will present the instruments used and describe the analysis of the data.

CHAPTER III

PROCEDURES

Since the purpose of this study was to determine predictors of remedial reading success among low achievers, the population studied was one of low achievers assigned to compensatory reading classes.

Specifically, the aim was to ascertain whether subjects of higher intelligence, greater underachievement, or higher differential vocabulary would gain more from intensive reading instruction than subjects of lower intelligence, lesser underachievement, or lower differential vocabulary.

This chapter describes the population, the tests used, and the treatment of the data.

Subjects

Subjects were students in the compensatory reading program in Sampson G. Smith Intermediate School, a seventh-and-eighth-grade school of about 950 students in Franklin Township (Somerset), New Jersey.

According to 1970 census data, Franklin Township is a community of 30,389. Of these, 25,755 are White and 4,426 are Black. Since 1970, however, the township

has grown; and a large number of non-Whites have moved to the area. Somerset now has a large Black-middle-class constituency. In 1970, the median family income of the township was $11,573. The median income of Black families was substantially lower, $9.974. However, it is estimated that the median family income level (adjusted for inflation) of the test population is even lower than this, since almost half of the subjects received free or reduced-price lunches. Approximately 30% of the test population is White; the remainder is primarily Black but includes some Hispanics.

The compensatory reading classes contained 114 students in 1977-78. Data were successfully gathered on 40 of these students. These 40 constitute the test population. All were assigned to special reading classes based on low reading achievement scores on the Comprehensive Test of Basic Skills (seventh graders) or the New Jersey State Educational Assessment Profile (eighth graders). (In accordance with N.J.S.A. 18A:7A-1.)

The compensatory reading students were very different from students in the general population in ethnic background, economic background, and in gender. While an estimated 40% of the school population was non-White, 70% of the students in this study were non-White. Over half of the study population

received free or reduced-price lunches (19 free; 2 reduced price). Less than a quarter of the school population qualified for this lunch program. To receive free lunches, a student's family income had to be less than $7,610 per year (based on a family size of four). A maximum annual income of $11,880 qualified a family of four to receive reduced-price lunches for its school children.

Comparing compensatory reading students to the school population shows that these low achievers come from a lower economic group than does the township population. Over two thirds of the compensatory reading students have minority backgrounds compared to less than half in the general population. In addition, nearly half of the study population is both non-White and poor. As is the case in many remedial populations, the majority of the students are male.

The compensatory reading students were selected for reading help based on test scores. They comprise 12% of the school population. Another 20-25% of the school was assigned to designated English classes for "compensatory education." The reading students were also assigned to English classes, giving them 10 periods of language arts and reading training in a five-day week. Their low test scores were seen as an indication of educational need that justified this

allocation of resources. See Table 1.

Only the achievement of students in the compensatory reading program is analyzed in this study. As indicated in Chapter I, any conclusions reached by this study will be limited to similar populations.

Test Instruments

SRA's Test of General Abilities (TOGA)

The TOGA Form A, grades 6-9 was used to determine IQ and expectancy. According to Flanagan's (1960) technical manual, this group test was designed to measure "basic learning ability (general intelligence) without the use of test materials that are explicitly dependent on school learned skills such as reading, writing, and arithmetic" (p. 6). This design suits the purpose of the study since the population consists of low achievers.

The TOGA consists of two parts. Part 1 taps information, vocabulary, and concepts, using oral cues and multiple choice of pictures. Part 2 taps abstract reasoning ability using a series of geometric designs, one of which is inconsistent with the others in its group.

The TOGA is a fairly reliable test. The split-half reliability of this form of the TOGA was .85 through .90. The Kudder-Richardson 21 reliability

TABLE 1

CHARACTERISTICS OF THE SCHOOL AND TEST POPULATIONS--PERCENTAGE NON-WHITE, RECEIVING FREE OR REDUCED-PRICE LUNCHES, NON-WHITES RECEIVING FREE OR REDUCED-PRICE LUNCHES, MALE, AND IN COMPENSATORY READING CLASSES

	% Non-White	% Free or Reduced Lunch	% Non-White Free or Reduced Lunch	% Male	% in Compensatory Reading Classes
Compensatory reading students in this study; n = 40	70	53	45	65	--
School population; n = 950	40[a]	23	N.A.[b]	49[a]	12[c]

[a]Estimated.

[b]Not available.

[c]114 students were assigned to compensatory reading classes.

ranged from .80 through .86.

The TOGA correlates well with other IQ tests ranging from .41 through .80 with a median of .62. Considering the test's design (to measure intelligence without direct dependency on school-learned skills), this range of correlation indicates that the TOGA may indeed measure some aspects of intelligence that other tests miss.

Since the TOGA also correlates well with reading skills (about .70), it is an appropriate tool for predicting success in reading.

In Buros' (1965) The Sixth Mental Measurement Yearbook, Horrocks called the TOGA

> a promising, carefully constructed general measure of verbal intelligence whose author has provided excellent quantitative background information for prospective users. . . . The attempt to eliminate school centered information in writing test items is a particularly strong feature. (p. 776)

Siegel (cited in Buros, 1965) added his approval:

> Flanagan's TOGA is particularly well-tailored to intellectual assessment when opportunities for formal schooling have been deficient. Beyond this, brevity, technical quality, and soundness of rationale appear to commend it for wide use as an all-purpose measure of general intelligence. (p. 779)

The Gates-MacGinitie Reading Tests

The Gates-MacGinitie Reading Tests, Forms 1 and 2 of levels C and D were employed in this study. Level C consists of two parts. In the vocabulary section, the student selects the word that best identifies a picture or is synonymous with a test word. An ample 20 minutes are allowed on level C.

In the comprehension section, the student selects a short answer following a brief reading passage. Thirty minutes are allowed for this section of form C.

Level D consists of three sections, Speed and Accuracy, Vocabulary, and Comprehension. In the speed and accuracy section, students select a short answer to a question following a brief passage. Five minutes are allowed for this section.

In the vocabulary section, students select a synonym for a test word. Twenty-five minutes are are allowed. Words are of increasing difficulty as in level C.

In the comprehension section, the student selects words that best fill blanks in short passages. Two or three such "cloze" blanks appear in each passage, and passages increase in difficulty throughout the test.

Although the vocabulary and comprehension sections are designed as "power" tests, a few students

could not complete the comprehension section in the allotted time. Since these students were not answering successfully at the point at which they stopped work, this timing defect had minimal effect on test scores.

The split-half reliability is reported below the alternate form reliability of .78 through .89. Van Roekel cites this as an improvement over previous editions in Buros' (1972) The Seventh Mental Measurement Yearbook. Van Roekel also said "the try out sample and the norming group appear to have been quite adequate," and adds "the Gates-MacGinitie tests reflect a marked improvement over their predecessors" (p. 1082).

Powell (cited in Buros, 1972), also commended the test saying "as compared with other general reading tests, the Gates-MacGinitie Reading Tests would provide usable data on achievement in comprehension, vocabulary, and speed" (p. 1083). He notes, however, that the test tends to report frustration levels and not instructional levels. Since this does not reflect an internal inconsistency, it should not affect the measurement of reading gains.

The Differential Vocabulary Test

To determine the difference between students' sight word vocabularies and meaning vocabularies, the Differential Vocabulary Test was employed. The D.V.

is a test in the "try out" stage of development.

According to the manual,

> the purpose of this test is to quickly estimate the size of an individual child's Sight Reading Vocabulary and to compare it with the size of his meaning vocabulary. The differential between the two vocabulary sizes might be useful in selecting students for remedial reading. [See Appendix C.]

The test consists of 26 words ranging from the 100th most frequent to the 40,000th most frequent words in the language according to Carroll's (1971) American Heritage Word Frequency Book. Students read the list of words and are subsequently asked each word's meaning.

The American Heritage Word Frequency Book which is the basis for vocabulary section "contains a ranking of approximately five million running words. The basis of written materials sampled were textbooks and materials read by students in grades 3 through 9." (See Appendix C.) The test sample, therefore, was taken from a sample that adequately represents words to which intermediate students have been exposed.

Administration of the Tests

At the outset of the study in late November 1977, students were given the Differential Vocabulary Test. The test was individually given in a quiet corner of the reading classroom while other students were engaged in seat work.

In late November and early December, the TOGA and Gates-MacGinitie Reading Tests were given. These group tests were also given in regular reading classrooms in groups of 9-13.

Students were given the C or D level Gates-MacGinitie Test based on teacher estimates of reading level. The aim of using different level tests was to obtain scores that fell in the middle range of the test, thus avoiding less reliable scores at the extreme ends.

Since alternate forms were to be used in posttesting, test assignments were counterbalanced so that half of those taking each level received form 1 and half received form 2.

At the end of the study period (one-half school year) in early May, the Gates MacGinitie Reading Tests (alternate forms) were given. The conditions were identical to pretest administration. The experimenter was also the instructor.

Treatment of the Data

This study sought to determine learner characteristics that predict success in remedial reading. Intelligence, underachievement, and vocabulary differential were considered predictor variables. Comprehension gain scores and vocabulary gain scores, expressed in grade equivalents, and mean relative

learning rates, expressed as ratios, were considered outcome variables. Scores were grouped above and below the mean for each predictor variable, and a t test was performed to determine the significance of the differences between the outcome variables' means for each subgroup.

Correlations between predictor variables and outcome variables were calculated where the data warranted using the Pearson Product Moment formula.

Reading success, expressed in gain scores, is self-explanatory. Relative learning rate, however, bears some discussion. Relative learning rate was defined in Chapter I as the ratio of (a) the learning rate during remediation to (b) the learning rate prior to remediation (both measured in gain scores per year).

If a student entered the study with a reading score of 4.5 and a grade placement of 8.3 and obtained a posttest score of 5.2 at grade placement 8.8, his relative learning rate would be:

$$\frac{\text{gain/year of remediation}}{\text{previous gain/years in school}} = \frac{(5.2 - 4.5)/(8.8 - 8.3)}{(4.5/7.3)} = \frac{1.4}{.616} = 2.27$$

This student had been learning to read at a rate of .616 grade equivalents per year prior to

remediation (4.5/7.3--a student whose grade placement is 8.3 has been through 7.3 years of schooling). During remediation, he gained .7 grade equivalents in one-half year (.5). His learning rate during remediation was 1.4 grade equivalents per year. Dividing this "gain/year of remediation" by the "previous gain/years in school," we find this student's relative learning rate is 2.27.

This would mean that the student learned almost 2½ times as quickly during remediation as during previous schooling. As a measure of remedial reading success relative learning rate may be more valid than simple gain scores because it reflects the student's benefit from the program relative to his ability.

The following chapter will report the results, examined both in terms of gain scores and relative learning rate.

CHAPTER IV

FINDINGS

The review of the literature discussed opinions and findings about the efficacy of three predictor variables: intelligence, underachievement, and vocabulary differential--the difference between aural vocabulary and sight vocabulary. Here, the achievements of subjects of higher or lower predictive characteristics are compared. Significant differences between the mean achievement scores of subjects in high and low groups would indicate the power of the predictor to forecast remedial reading success. Three hypotheses were cast in the null form to investigate the three predictor variables. Rejection of a hypothesis would support the validity of that predictor variable on the outcome variable in question.

Results

Hypothesis I, "there will be no significant difference in mean relative learning rates or mean reading gains during remediation between subjects of higher or lower IQ for this population," was confirmed by the data. Surprisingly, subjects of lower IQ tended to

gain more than subjects of higher IQ.

Table 2 describes the subgroups formed by grouping subjects by IQ scores, and presents mean outcome variables for each subgroup. None of the differences were significant, partly due to the small size of the groups and to the high variabilities of the scores. Reference to Appendix B shows 9 of 39 vocabulary gain scores, and 11 of 40 comprehension gain scores were negative. These factors contributed to the lack of significance between the means in this study.

Despite the lack of statistical significance, however, Table 2 reveals some surprising results. When scores were grouped into upper and lower thirds of IQ rank, the lower third gained more than the upper third in both comprehension and vocabulary. A comparison of both comprehension and vocabulary pretest scores shows that these two groups were not very different at the beginning of the study, although the lower third trailed the upper third five months in comprehension and one month in vocabulary.

In contrast, comparison of the population grouped above and below its mean IQ yielded greater comprehension gains for subjects of higher IQ. This reversal of outcomes was caused by scores of subjects of middle IQ for this population, which were widely varying. This factor does not strengthen IQ's claim

TABLE 2

MEAN RELATIVE LEARNING RATES (RLR) AND MEAN GAIN SCORES FOR SUBJECTS OF HIGHER AND LOWER IQ FOR THIS POPULATION

Subgroup	Comprehension		Vocabulary	
	Mean RLR	Mean Gain	Mean RLR	Mean Gain
Subjects above population mean IQ IQ range: 110-79; $\bar{X}_{IQ}$ = 88 Mean pretest scores: Comprehension = 4.17, $\underline{n}$ = 16; Vocabulary = 4.41, $\underline{n}$ = 16	1.56	.47	.83	.17
Subjects below population mean IQ IQ range: 77-55; $\bar{X}_{IQ}$ = 71 Mean pretest scores: Comprehension = 3.90, $\underline{n}$ = 21; Vocabulary = 4.12, $\underline{n}$ = 20	1.33	.28	1.26	.30
Subjects in upper 1/3 of IQ rank IQ range: 110-82; $\bar{X}_{IQ}$ = 90 Mean pretest scores: Comprehension = 4.18, $\underline{n}$ = 13; Vocabulary = 4.32, $\underline{n}$ = 13	1.32	.39	.64	.08

TABLE 2--Continued

Subgroup	Comprehension		Vocabulary	
	Mean RLR	Mean Gain	Mean RLR	Mean Gain
Subjects in lower 1/3 of IQ rank IQ range: 73-55; $\bar{X}_{IQ}$ = 66 Mean pretest scores: Comprehension = 3.77, n = 13; Vocabulary = 4.18, n = 13	2.20	.50	.98	.21
Total Population IQ range: 110-55, $\bar{X}_{IQ}$ = 78 Mean pretest scores: Comprehension = 4.01, n = 37; Vocabulary = 4.25, n = 36	1.43	.36	1.06	.24
Correlations with IQ	-.14	-.10	- not calculated -	

as a predictor, for this population whose mean IQ was 78.

Relative learning rates displayed the same behavior as gain scores in this table, partly owing to the similarity in pretest scores for all subgroups.

Correlations between IQ and comprehension RLR and gain scores were negative and insignificant.

In this study, the predictive validity of underachievement was not good. Hypothesis II, "there will be no significant difference in mean relative learning rates or mean gain scores for subjects of greater or lesser underachievement for this population," cannot be rejected by the evidence summarized here. In fact, mean scores are in the opposite of expected direction. Students of greater underachievement (2.6 years) made less gain (.22 years) than students with lesser underachievement (-.6 years) who gained .56 years). See Table 3.

As was the case when grouping subjects by IQ, there was no significant difference between means for any outcome variables. Again, subjects of lesser predictive characteristic gained more in comprehension than those of greater predictive characteristic. The observed t between mean comprehension gain scores was greater than one but less than the critical t. Vocabulary scores for greater and lesser underachievers

TABLE 3

MEAN RELATIVE LEARNING RATE (RLR) AND GAIN SCORES FOR SUBJECTS OF GREATER AND LESSER UNDERACHIEVEMENT FOR THIS POPULATION

Subgroup	Comprehension		Vocabulary	
	Mean RLR	Mean Gain	Mean RLR	Mean Gain
Greater Underachievers				
Subjects above population mean underachievement	.96	.22	1.09	.27
Underachievement range: 6.2 to 1.3; $\bar{X}_u = 2.64$				
Mean pretest scores: Comprehension = 3.73, $n = 18$; Vocabulary = 4.00, $n = 17$				
Lesser Underachievers				
Subjects below population mean underachievement	2.12	.56	1.04	.22
Underachievement range: .9 to -1.1; $\bar{X}_u = -.58$				
Mean pretest scores: Comprehension = 4.26, $n = 19$; Vocabulary = 4.48, $n = 19$				

TABLE 3--Continued

Subgroup	Comprehension		Vocabulary	
	Mean RLR	Mean Gain	Mean RLR	Mean Gain
Observed *t* between greater and lesser underachievers critical *t* .20,35 = 1.31	1.09	1.18	- not calculated -	
Total Population Underachievement range: 6.2 to -1.1; $\bar{X}_u$ = .99 Mean pretest scores: Comprehension = 4.00, *n* = 37; Vocabulary = 4.25, *n* = 36	1.56	.40	1.06	.24

were almost identical; therefore, t values were not calculated.

This study also investigates the predictive validity of vocabulary differential on relative learning rates and gain scores. The instrument piloted by this study was designed as a predictive tool. It was expected that students who could explain more words than they could sight read would be better candidates for remedial reading, since they had a large oral vocabulary which might be unlocked by intensive training.

The results, summarized by Table 4, confounds this expectation. None of the differences between means of groups of higher or lower vocabulary differential were significant. The largest differences occurred when calculating comprehension outcomes, and these were opposite to expectations. Students with low vocabulary differentials (in this population, those who could explain no more, or fewer words than they could sight read) gained about half a year in comprehension (.48). Subjects with higher vocabulary differentials (greater than zero, for this population) gained about one month in comprehension (.12). Because of high variability of the scores and the smallness of the population, however, this difference was not statistically significant.

TABLE 4

MEAN RELATIVE LEARNING RATES (RLR) AND MEAN GAIN SCORES FOR SUBJECTS OF HIGHER OR LOWER DIFFERENTIAL VOCABULARY (D.V.) FOR THIS POPULATION

Subgroup	Comprehension		Vocabulary	
	Mean RLR	Mean Gain	Mean RLR	Mean Gain
Subjects with D.V. > 0	.35	.12	1.80	.34
D.V. range: 10 to 1; $\bar{X}_{DV} = 4.3$				
Mean pretest scores:				
Comprehension = 4.2, $n = 12$;				
Vocabulary = 4.1, $n = 11$				
Subjects with D.V. ≤ 0	2.05	.48	1.16	.32
D.V. range: 0 to -11; $\bar{X}_{DV} = -3.6$				
Mean pretest scores:				
Comprehension = 4.0, $n = 10$;				
Vocabulary = 4.5, $n = 10$				
Observed t between subjects of higher or lower D.V. critical t .20,20 = 1.325	1.21	.89	.43	.11

TABLE 4--Continued

Subgroup	Comprehension		Vocabulary	
	Mean RLR	Mean Gain	Mean RLR	Mean Gain
Total Population	1.12	.28	1.49	.33
D.V. range: 10 to -11; $\bar{X}_{DV}$ = .7				
Mean pretest scores:				
Comprehension = 4.1, n = 22;				
Vocabulary = 4.3, n = 21				
Observed r with D.V.	-.15			

The difference between comprehension mean relative learning rates were also large but not significant. The observed *t* value of 1.2 was the largest for any means compared in this study. The correlation between differential vocabulary and comprehension relative learning rate, however, was an unimpressive -.1537. Although this reinforces the tendency of vocabulary differential to predict low gains, the correlation was far from significant.

Analysis of vocabulary outcome variables casts further doubt on differential vocabulary's power to predict gains for this population. Those with greater oral vocabularies gained no more than those with lesser oral vocabularies.

Hypothesis III, "there will be no significant difference in mean relative learning rates or mean gain scores for subjects of higher or lower vocabulary differential for this population," cannot be rejected by the evidence of this study.

Discussion

Although none of the results were statistically significant, a persistent trend emerges from the data. Dividing the population into subgroups of higher or lower predictive characteristics suggested the following generalizations:

1. None of the predictor variables were effective in forecasting vocabulary outcomes; differences between vocabulary means were very small indeed.

2. All three predictor variables tended to forecast results opposite to the expectations of those who would use them for selection of students for intensive training; subjects in the lower subgroups consistently gained more than those in the higher subgroups, but not significantly more.

In the review of the literature, arguments for and against the use of intelligence and its brother, underachievement, as predictor variables were presented. The evidence of this study casts severe doubts on their use when dealing with populations similar to the test population used here. Low achievers are misjudged by these tools, and those outside of the mainstream culture are at a disadvantage. The use of the underachievement principle in the general population would probably result in the selection of higher IQ students overall; its use in selecting among low achievers from poor and minority backgrounds would not be justifiable.

Vocabulary differential fared no better, in this study, than IQ or underachievement. In fact, comprehension relative learning rate differences were nearly significant in the direction opposite to expectations.

It seems that those who could read more words at the outset gained more in the end. Those whose oral ability surpassed their reading ability persisted in their difficulties with the printed word. Perhaps this test might be more successful with younger students who do not have as long a history of reading failure.

It must be said that all the analyses in this study were conducted with very small samples. This was especially true for vocabulary differential where the degrees of freedom were merely 20. However, there is no evidence that (a) intelligence, as measured by the TOGA, (b) underachievement based on that measurement and initial reading scores, or (c) vocabulary differential, as measured by the Fry Differential Vocabulary Test (Appendix C), can predict reading improvement for students who are low achievers and from minority backgrounds, as those in this population.

CHAPTER V

SUMMARY AND CONCLUSIONS

Summary

The possibility that intelligence, underachievement, or vocabulary differential--the difference between a student's aural and sight vocabularies--can predict remedial reading success among low achieving seventh and eighth graders does not appear viable. No significant differences were found between means of groups having high or low predictive characteristics. In fact, the tendency was for all three potential predictors to forecast greater gains for subjects with low predictor scores.

The use of the outcome variable "relative learning rate" shed no light on the problem of predictive validity. It was useful in showing that subjects gained more during remediation than during previous school experience, but the use of this relative measure of success produced no significant results where gain scores failed.

Conclusions

None of the null hypotheses can be rejected by the evidence of this study. Hypothesis I suggested that intelligence would not predict gain scores for this population; the evidence supports this hypothesis. The observed *t* value between groups in the upper and lower thirds of IQ rank was insignificant. In fact, the lower group outscored the upper group.

Hypothesis II suggested that underachievement could not predict remedial reading success either; it did not. The results parallel those for IQ.

Hypothesis III suggested that vocabulary differential could not predict remedial reading success; the evidence could not negate this suggestion. Again, the results showed insignificant differences and a tendency for subjects with low predictor characteristics to outscore subjects with high predictor characteristics.

The population used in this study was selected because it was chosen by public school officials to receive remediation based on student need as defined by low test scores. These students happened to come from poorer economic backgrounds than the general population; the group was comprised of more males and more Blacks and Hispanics than the community as a whole; the group also had a much lower mean IQ than

the normal population. Compensatory reading success for this atypical population could not be predicted by the variables investigated by this study.

Suggestions for Further Research

Duplication of this study with larger populations would seem profitable. This study could be duplicated using different age groups. This study could be duplicated using larger ability and achievement ranges, as well.

A study investigating the predictors examined here, which controlled for socioeconomic status, would be useful. Other factors which may be controlled while investigating the variables in this study are: student motivation and attitude, learning styles, self-image, and parental support.

Further study of differential vocabulary as a predictor of reading success may be carried on with an extended version of the present instrument. Increasing the number of items on this test may increase its ability to discriminate among students.

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APPENDIX A

TEST SCORES

TEST SCORES

Case No.	Pretest Age in Years (12/77)	Grade Placement	IQ	Underachievement	Vocabulary Differential	Pretest (12/77)		Posttest (5/78)	
						Voc.	Comp.	Voc.	Comp.
1.	13.8	8	65	.1	- 5	4.5	3.8	4.5	5.5
2.	14.3	8	74	-1.1	- 8	5.5	6.5	5.5	5.5
3.	15.0	8	55	-1.0	-11	4.5	4.0	4.7	4.1
4.	12.2	7	73	- .8	0	4.8	4.4	4.7	4.8
5.	13.8	7	73	.9	1	4.4	4.1	4.2	3.4
6.	13.8	7	82	1.7	--	4.5	4.7	4.2	5.1
7.	13.0	8	--	--	9	2.6	4.1	4.8	4.0
8.	13.0	8	71	- .8	--	5.0	4.9	4.8	6.1
9.	12.6	7	82	- .4	1	6.5	5.6	4.8	5.8
10.	13.3	7	94	4.1	2	3.4	3.1	3.7	4.5
11.	12.7	7	82	1.7	0	3.2	3.6	4.2	4.1
12.	13.8	7	76	.2	6	3.2	5.1	3.7	4.1
13.	13.3	7	88	2.6	6	3.7	3.8	5.0	4.7
14.	13.0	7	110	4.5	--	4.5	6.1	4.8	5.1
15.	12.8	7	71	0	--	3.9	3.1	4.1	4.8
16.	13.5	8	79	1.5	- 2	6.0	3.8	6.2	3.4
17.	13.6	8	82	1.5	--	4.5	3.4	5.0	2.9
18.	14.7	8	79	1.5	--	4.5	4.9	5.0	5.6
19.	14.5	8	64	.5	--	5.5	3.6	4.7	3.6

Case No.	Pretest Age in Years (12/77)	Grade Placement	IQ	Under-achievement	Vocabulary Differential	Pretest (12/77)		Posttest (5/78)	
						Voc.	Comp.	Voc.	Comp.
20.	14.4	8	76	2.9	--	2.6	2.7	3.1	3.6
21.	14.2	8	71	.3	--	4.2	4.7	4.2	3.6
22.	12.5	7	85	.5	7	5.8	5.1	6.0	6.5
23.	12.2	7	73	- .8	--	4.2	4.5	4.8	5.6
24.	13.4	7	88	1.6	1	4.0	4.8	4.4	5.3
25.	12.8	7	68	- .4	1	3.9	4.0	4.0	3.1
26.	13.9	8	102	6.2	10	3.4	2.8	3.1	3.0
27.	14.0	8	--	--	- 7	4.7	3.1	4.9	3.5
28.	13.3	7	76	1.3	6	--	3.7	3.6	3.1
29.	14.0	7	85	2.2	2	4.4	4.5	5.3	4.6
30.	12.2	7	79	.7	--	4.0	3.7	4.9	5.8
31.	13.3	7	68	.7	- 2	3.5	3.1	4.7	4.9
32.	13.3	7	77	- .8	--	4.7	5.0	5.7	5.4
33.	12.6	7	74	.8	- 3	4.2	3.4	4.4	4.7
34.	13.4	7	76	1.3	0	4.0	3.6	4.6	3.9
35.	12.0	7	99	3.7	--	2.9	3.1	3.4	3.1
36.	14.3	8	68	2.4	--	3.1	2.0	2.8	2.6
37.	14.8	8	77	3.4	--	3.9	2.8	4.4	1.8
38.	12.8	7	89	2.3	--	3.4	3.7	3.6	3.7
39.	13.3	7	61	.5	--	2.8	2.5	5.1	3.4
40.	--	7	--	- .6	--	4.0	3.6	4.2	4.1

APPENDIX B

GAIN SCORES AND RELATIVE LEARNING RATES

GAIN SCORES (Δ) AND RELATIVE LEARNING RATES (RLR)

Case No.	Vocabulary		Comprehension	
	Δ	RLR	Δ	RLR
1.	0	0	1.7	6.62
2.	0	0	-1.0	-2.28
3.	.2	.66	.1	.37
4.	- .4	- .80	.1	.27
5.	- .2	- .68	- .7	2.52
6.	- .3	- .98	.4	1.26
7.	2.2	12.52	- .1	- .36
8.	- .2	- .60	1.2	3.60
9.	-1.7	3.34	.2	.46
10.	.3	1.12	1.4	5.78
11.	1.0	4.00	.5	1.78
12.	.5	2.32	-1.0	2.90
13.	1.3	4.50	.9	3.04
14.	.3	.86	-1.0	-2.10
15.	.2	.66	1.7	7.00
16.	.2	.49	- .4	-1.56
17.	-1.7	-3.87	- .5	-2.18
18.	.5	1.64	.7	2.11
19.	- .8	-2.15	0	0
20.	.5	2.85	.9	4.93
21.	0	0	-1.1	-3.46
22.	.2	.44	1.4	3.01
23.	.6	1.83	1.1	3.13
24.	.4	1.28	.5	1.33
25.	.1	.33	- .9	-2.88
26.	- .3	1.31	.2	1.06
27.	.2	.63	.4	1.91

Case No.	Vocabulary		Comprehension	
	Δ	RLR	Δ	RLR
28.	--	--	- .6	-2.08
29.	.9	2.62	.1	.28
30.	.9	2.88	2.1	7.26
31.	1.2	4.39	1.8	7.43
32.	1.0	2.72	.4	1.02
33.	.2	.61	1.3	4.89
34.	.6	1.92	.3	1.07
35.	.5	2.21	0	0
36.	- .3	-1.43	.6	4.44
37.	.5	1.90	-1.0	-5.29
38.	.2	.75	1.0	3.46
39.	2.3	10.51	.9	4.61
40.	.2	.64	.5	1.78

APPENDIX C

FRY DIFFERENTIAL VOCABULARY TEST

DIFFERENTIAL VOCABULA TEST

by
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The purpose of this test is to quickly estimate the size of an individual child's Sight Reading Vocabulary and to compare it with the size of his meaning vocabulary. The differential between the two vocabulary sizes might be helpful in selecting students for remedial reading or the differential might be used as part of an educational assessment of a child.

DIRECTIONS: Sight Word Vocabulary

Give the student a copy of the test and ask him or her to read the words aloud. Give the student only one opportunity to pronounce it correctly. If it is mispronounced (see Pronunciation Key) it is wrong. Remember you are testing sight vocabulary. If the student has to laboriously sound out a word, it is not in his sight vocabulary.

Stop the test after 3 errors in a row (consecutively).

The examiner marks a C for correct or an X for incorrect on a separate copy of the test in the Sight Word column. The total number of correct responses is put at the bottom of the sheet.

DIRECTIONS: Word Meaning

After the student has completed the Sight Word part of the test, he or she can continue to look at the test if so desired, but the examiner must ask the student the meaning of each of the words including those not read initially by the student. It is not necessary to start at the first word. The examiner may start in the middle in order to save time; however, the student must make at least three correct responses in a row in order for the examiner to assume that all previous words are known. The test continues until the student makes three errors. The errors must also be made in a row (consecutively).

See the Word Meaning Key for judging correct responses.

The examiner marks a C for correct or an X for incorrect on the separate copy of the test in the Word Meaning column. The total number of correct responses is put at the bottom of the sheet.

Comments on Validity, Test Development, and Interpretation

In its present form this is a research instrument and possibly a test in the tryout stage of development.

The basis of vocabulary selection was the American Heritage Word Frequency Book which contains a ranking of approximately 87,000 different words which were all the different words used in approximately five million running words. The basis of written materials sampled were textbooks and materials read by students in grades 3 through 9. However, the sample is so large and the materials so varied that this can be said to encompass a major portion of words used in the English language in other than highly technical areas.

The Difficulty Level on the test tells the approximate level of frequency of the word (its rank order). Hence, if a student could read the first 10 words, we can estimate that his sight reading vocabulary size is approximately 2,000 words. If he can give the meaning of 13 words, we can estimate that his listening-meaning vocabulary is approximately 5,000 words.

Differential Vocabulary Test (Intermediate)

Student name_____ date_____ examiner_____

		sight word	word meaning	difficulty rank
1.	know	____	____	100
2.	important	____	____	200
3.	usually	____	____	300
4.	special	____	____	400
5.	dry	____	____	500
6.	music	____	____	600
7.	returned	____	____	1000
8.	wore	____	____	1500
9.	foreign	____	____	2000
10.	mood	____	____	2500
11.	finest	____	____	3000
12.	tense	____	____	3500
13.	lever	____	____	4000
14.	convenient	____	____	4500
15.	expansion	____	____	5000
16.	bomb	____	____	5500
17.	minimum	____	____	6000
18.	explanations	____	____	7000
19.	license	____	____	8000
20.	homonyms	____	____	9000
21.	approve	____	____	10000
22.	abolished	____	____	15000
23.	humiliating	____	____	20000
24.	menagerie	____	____	25000
25.	calloused	____	____	30000
26.	adrenal	____	____	40000
	total correct	____	____	

differential = word meaning minus sight words = _____

WORD MARKING KEY

Words should be marked correct if the student demonstrates a working knowledge of its definition, or if he or she defines the word. If the student cannot define the word, but uses it in a sentence correctly, ask "What does that mean?" If the student cannot explain the usage correctly, mark the answer wrong.

Examples:

1. returned; student, "Like you returned something."

   examiner, "What does that mean?"

   student, "Like you borrowed something, and you gave it back."

   examiner, "I see." (marks meaning correct)

2. convenient; student, "That will be convenient."

   examiner, "What does that mean?"

   student, "That will be difficult."

   examiner, "I see." (marks meaning wrong)

PRONUNCIATION KEY AND WORD MEANINGS

1. know (nō) v. to understand; to be acquainted with
2. important (im pôr' tȧnt) significant, noteworthy; authoritative; suggesting great value
3. usually (yo͞o' zho͞o ȧl lē') on a regular basis ("often" or "frequently" are acceptable with examples)
4. special (spesh' ȧl) surpassing what is common or usual; esteemed or close (e.g., special friends)
5. dry (drī) not wet
6. music (myo͞o' zik) vocal or instrumental sounds (examples acceptable)

7. returned (ré têrnd') v. gave back; came back;
   adj. given back

8. wore (wôr) v. past tense of wear

9. foreign (fôr' in) adj. from another country;
   alien; situated in an abnormal or improper
   place

10. mood (mo͞od) n. a temporary feeling; morose be-
    havior

11. finest (fī' nèst) adj. best; most slender; least
    course

12. tense (tens) adj. taut; strained, in a state of
    nervous tension
    n. grammatical tense
    v. to make taut

13. lever (lev' êr) n. a simple machine made of a
    rigid body pivoted on a fixed fulcrum; a
    handle used to operate a machine

14. convenient (con vē' nyènt) adj. suited to one's
    needs; accessible

15. expansion (ex pan' shun) n. the act of getting
    larger; the state of being larger

16. bomb (bom) n. an explosive;
    v. to send or throw an explosive

17. minimum (min' ì mum) n. the least possible quantity

18. explanations (ex plà nā' shunz) n. pl. the acts
    of making plain; clarifications; excuses

19. license (lī' sèns) n. legal permission; proof of
    legal permission (a driver's license; a hunting
    license)

20. homonyms (ho' mò nimz) n. pl. words that sound
    the same but do not have the same meaning

21. approve (a pro͞ov') v. endorse; sanction; certify

22. abolished (a bol' isht) v. did away with

23. humiliating (hyo͞o mil' e͞e ā ting) adj., v. lowering in pride; disgracing

24. menagerie (mə̇ naj' er e͞e) n. a zoo; a collection of live wild animals

25. calloused (ca' lu̇st) adj. covered with thickened skin; hard hearted

26. adrenal (ȧ dre͞e' nȧl) adj. related to the adrenal glands, located on the kidneys

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SOURCE: The American Heritage Dictionary of the English Language, 1969.